

5 **CLAIMS**

~~What is claimed is:~~

1. A coating composition comprising:

a binder component comprising:

(i) an epoxy resin having at least one acetoacetate functionality
and at least one epoxy group, and

one or more reactive components provided with at least two
acetoacetate functionalities, said reactive component being
selected from the group consisting of a structured reactive diluent,
an acrylic polymer, a polyester, and a combination thereof; and
(ii) a crosslinking component selected from the group consisting of
a polyamine, a blocked polyamine and a mixture thereof, wherein
said polyamine has an average of at least two amine functionalities
per polyamine molecule and wherein said blocked polyamine has
an average of at least two imine functionalities per molecule.

2. The coating composition further comprising at least one organosilane
having at least one epoxy or amino group.

3. The coating composition of claim 1 or 2 wherein said blocked polyamine is
a polyketimine or polyaldimine.

4. The coating composition of claim 1 wherein the GPC weight average
molecular weight of said epoxy resin ranges 100 from 30,000.

5. The coating composition of claim 1 wherein the GPC weight average
molecular weight of said epoxy resin 100 to 10000.

6. The coating composition of claim 1 wherein said composition has a low
VOC.

7. The coating composition of claim 1 comprising 5 to 90 weight percent of
said epoxy resin based on total weight of binder component solids.

8. The coating composition of claim 1 comprising 5 to 90 weight percent of
said structured reactive diluent, said acrylic polymer, or said polyester
based on total weight of binder component solids.

9. The coating composition of claim 1 wherein the GPC weight average
molecular weight of said structured reactive diluent ranges 100 from
30,000.

- 5 10. The coating composition of claim 1 wherein the GPC weight average molecular weight of said acrylic polymer ranges 1000 from 100,000.
11. The coating composition of claim 1 wherein the GPC weight average molecular weight of said polyester ranges 1000 from 50,000.
12. The coating composition of claim 1 wherein the GPC weight average
10 molecular weight of said polyamine or said blocked polyamine ranges from 100 to 50,000.
13. The coating composition of claim 1 comprising 10 to 90 weight percent of said crosslinking component based on total weight of binder component solids.
- 15 14. The coating composition of claim 1 wherein said structured diluent is a reaction product of a structured hydroxy diluent having a GPC weight average molecular weight ranging from 80 to 2000 with an acetoacetic acid derivative.
15. The coating composition of claim 14 wherein said structured hydroxy
20 diluent is pentaerythritol and wherein said acetoacetate compound is t-butyl acetoacetate.
16. The coating composition of claim 14 wherein said structured hydroxy diluent is trimethylol propane.
17. The coating composition of claim 14 wherein said structured hydroxy
25 diluent is a reaction product of pentaerythritol with methylhexahydrophthalic anhydride further reacted with 2 to 10 carbon atom aliphatic epoxide.
18. The coating composition of claim 14 wherein said structured hydroxy
30 diluent is a reaction product of pentaerythritol with 4 to 10 carbon atom aliphatic lactone further reacted with 2 to 10 carbon atom aliphatic epoxide.
19. The method of producing a coating on a substrate comprising:
mixing a binder component with a crosslinking component of a coating composition to form a pot mix,
35 wherein said binder component comprises:
(i) an epoxy resin having at least one acetoacetate functionality and at least one epoxy group, and

- 5 (ii) one or more reactive components provided with at least two acetoacetate functionalities, said reactive component being selected from the group consisting of a structured reactive diluent, an acrylic polymer, a polyester, and a combination thereof; and wherein said crosslinking component is selected from the group
- 10 consisting of a polyamine, a blocked polyamine and a mixture thereof, wherein said polyamine has an average of at least two amine functionalities per polyamine molecule and wherein said blocked polyamine has an average of at least two imine functionalities per molecule;
- applying a layer of said pot mix over a substrate surface; and
- 15 curing said layer under ambient conditions to form said coating on said substrate.
20. The method of claim 19 wherein said substrate is an automotive body.